Experimental Commercial Crab Fishing Project Labrador

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ABSTRACT

Barney, W., G. Wilton. 1986. Experimental Commercial Crab Fishing Project Labrador. Can. MS Rep. Fish. Aquat. Sci. 1888: 26 p.

The Newfoundland Snow crab **(Chionoecetes opilio)** fishery, estimated at over ten million dollars landed value in 1983, is experiencing productivity problems caused by declining catch rates. In an effort to alleviate the situation the Fisheries Development Branch, during recent years, has carried out exploratory crab surveys along the coast of Newfoundland and Labrador. Two such surveys in 1983 (Barney, W., W.C. Hiscock, and D. Whalen. 1983 Exploratory Crab Survey Newfoundland) and 1984 (Barney, W. and W.C. Hiscock. 1984. Offshore Crab Survey, Northeastern Newfoundland and Labrador) indicated potential for a commercial fishery off the coast of Labrador. In 1985, two crab vessel owners were given temporary licenses to carry out an experimental fishery on a commercial basis with a Fisheries Development Branch representative monitoring the fishing operations of both vessels. The vessels fished eight separate areas and found large commercial concentrations of crab in most. However, these areas cover only a small portion of potential crab grounds off Labrador.

RÉSUMÉ

Barney, W., G. Wilton. 1986. Experimental Commercial Crab Fishing Project Labrador. Can. MS Rep. Fish. Aquat. Sci. 1888: 26 p.

La pêche du crabe des neiges (Chionoecetes opilio) à Terre-Neuve, dont la valeur au débarquement était estimée à plus de 10 millions de dollars en 1983, souffre de problèmes de productivité causés par des taux de capture en baisse. Afin d'améliorer la situation, la Diretion du développement des pêches a effectué ces dernières années des relevés exploratoires du crabe sur le littoral de Terre-Neuve et du Labrador. Deux relevés réalisés en 1983 (Barney, W., N.C. Hiscock and D. Whalen 1983. Exploratory Crab Survey Newfoundland) et 1984 (Barney, W. and N.C. Hiscock. 1984. Offshore Crab Survey, Northeastern Newfoundland and Labrador) ont révélé une pêche commerciale potentielle au large du Labrador. En 1985, deux propriétaires de caseyeurs ont reçu des permis temporaires pour mener une pêche expérimentale du crabe sur une base commerciale. Un représentant de la Direction du développpement des pêches a surveillé les opérations de pêche des deux bateaux qui ont relevé de grandes concentrations de crabes à potentiel commercial dans la plupart des huit zones étudiées. Toutefois, ces zones ne représentent qu'une petite partie des pêcheries potentielles du crabe au large du Labrador.

INTRODUCTION

Since the late 1960's, before there was a commercial Snow crab fishery in Newfoundland, the Fisheries Development Branch, Department of Fisheries and Oceans, has carried out exploratory resource surveys to determine the commercial potential of the Snow crab resource in Newfoundland and Labrador waters. In 1983 and 1984 two such surveys indicated potential for a commercial fishery off the coast of Labrador. Crab catches were low off the island portion of the province, and results of the survey prompted the owners of two Newfoundland crab vessels to submit a proposal to the Department of Fisheries and Oceans to test the feasibility of commercially fishing this region. Since a commercial effort by crab fishermen would demonstrate the potential of the fishery, and would also promote its exploitation, the Resource Management Division of the Department of Fisheries and Oceans granted two temporary licenses to fish crab in NAFO Division 2J.

The vessels **Lady Roxanne** and **Endeavor 82** carried out normal fishing operations in the area using information from the 1983 and 1984 resource surveys. A Fisheries Development representative accompanied one of the vessels and monitored fishing procedures and recorded data related to the fishing operations of both.

This report describes the vessels and the fishing operations they carried out, and presents an analyses of data recorded.

FISHING VESSELS AND OPERATIONS

OPERATIONS

Fishing began in areas selected on the basis of information provided from the 1983-84 surveys. As the season progressed, effort was directed to those areas yielding the highest catch rates. Specific areas were chosen according to depth and bottom type as indicated by depth sounder. All data presented in this report were collected during commercial fishing operations.

The bait used was a combination of five parts squid and one part mackerel, the common baiting mix for these vessels.

As the crab pots came onboard, the crab were released into the hold and separated into two categories, commercial size (carapace width 95 mm and greater) and noncommercial (less than 95 mm or soft-shell). Commercial crab were placed into boxes and stored in the hold; rejects were immediately boxed and returned to the ocean after the fleet of crab pots was hauled.

VESSELS

The two vessels which carried out the fishing operations were very similar in design and equipment.

They were built in 1982 and 1983 in Newfoundland and have an overall length of 19.8 m (64' 11"), a width of over 6.7 m (22') and a draft of 2.7 m (9'). They are powered by diesel engines (400 hp +), capable of producing a maximum speed of 11 knots.

The vessels are equipped with Loran C navigators, Decca Navigators, radars, VHF and SSB radios, compasses, auto pilots, and depth recorders. They also have fully insulated fish holds with condensing units for temperature control and capable of holding over 500 boxes of crab.

RESULTS

The vessels (which will be referred to as Vessel 1 and Vessel 2) fished for 2 months from the middle of August to the middle of October, each making 18 landings in that period.

VESSEL 1

Vessel 1 fished 174 fleets of crab pots (10,787 individual pots) for a total catch of 202,984 kg (447,504 lb) of which 190,066 kg (419,024 lb) was commercial size and 12,918 kg (28,480 lb) (6%) was undersize. (During this project soft-shell crab caught amounted for less than one percent). Depths ranged from 230 to 350 m (125 to 190 fathoms). The average fishing time for each fleet was 102 hours. Catch rates for individual fleets ranged from a low of 0 kg to a high of 54.8 kg (121 lb) of commercial crab per pot. The overall average catch rate was 17.2 kg (37 lb) of commercial crab per pot. The average commercial catch per trip was 10,559 kg (23,279 lb). For more information see Table 1 and Appendix I.

TABLE 1: Vessel 1, Trip Summary - 1985, Crab Vessel Monitoring, Labrador

Date Landed	No. Pots Fished	Catch (lbs.)		Fishing Time (Hrs)	Depth Range (fathoms)	Area(s) Fished	Average Catch per Pot (lbs)	Landing Site
		Commercial	Undersize					
Aug. 19	800	18,729	3,500	144	125-175	1, 2, 3	23.4	Mary's Hr.
Aug. 21	800	29,133	2,000	72	125-145	3	36.4	St. Anthony
Aug. 23	375	22,002	500	42	165-175	4	58.7	Mary's Hr.
Aug. 26	609	28,579	1,080	67	160-170	4	46.9	St.Anthony
Aug. 29	355	25,990	1,400	92	165-175	4	73.2	Mary's Hr.
Aug. 31	561	26,232	1,680	97	163-175	4	46.8	Mary's Hr.
Sept. 02	562	27,636	2,480	61	160-173	4	49.2	Mary's Hr.
Sept. 04	684	22,430	2,200	83	163-175	4	32.8	Mary's Hr.
Sept. 11	736	23,711	1,060	164	157-175	4	32.2	Mary's Hr.
Sept. 14	732	25,002	2,040	84	165-175	4	34.1	Mary's Hr.
Sept. 16	794	26,067	2,640	54	168-178	4	32.8	Mary's Hr.
Sept. 19	670	17,976	2,400	46	165-175	4	26.8	Mary's Hr.
Sept. 20	735	25,905	2,480	46	170-190	4,6	35.2	Mary's Hr.
Sept. 25	597	25,389	760	119	185-190	6	42.5	Mary's Hr.
Sept. 27	734	31,483	900	75	175-190	6	42.9	Mary's Hr.
Oct. 01	311	12,760	640	95	185-187	6	41.0	Mary's Hr.
Oct. 08	426	19,050*	480	223	185-190	6	44.7	Mary's Hr.
Oct. 16	306	10,950*	240	456	180-187	6	35.8	Mary's Hr.
Total/Avg.	10,787	419,024	28,480		125-190		38.8	

Note:

Catch: The commercial catches are the actual landings recorded from the Labrador Fishermen's Union Shrimp Co. plant located in Mary's Harbour, while the undersized catches were estimated onboard the vessels.

*Estimated catch

Fishing Time: The average number of hours in which all fleets hauled on that date were in the water.

Conversion to Metric: kg = .4536 x lb
m = fathom * .5465

VESSEL 2

Vessel 2 fished 162 fleets of crab pots (11,340 individual pots) for a total catch of 154,636 kgs. (340,913 lbs) of which 142,182 kg (313,458 lb) was commercial size and 12,453 kg (27,455 lb) (8%) was undersize. Depths ranged from 212 m to 359 m (116 to 196 fathoms) while the average fishing time for each fleet was 102 hours. Catch rates for individual fleets ranged from a low of 0 to a high of 30.4 kg (67) lb of commercial crab per pot. Overall, the average commercial catch rate per pot was 12.7 kg (28 lb) while the commercial catch per trip averaged to 7,899 kg (17,414 lb). For more information see Table 2 and Appendix II.

COMBINED CATCH AND EFFORT

In total the two vessels fished 336 fleets (22,127 pots) during the 36 trips. The total catch of commercial crab was 332,248 kg (732,482 lb) while the noncommercial catch totalled 25,544 kg (56,315 lb)., or seven percent of the total overall catch. The commercial catch averaged 25,544 kg (20,347 lb) per trip or 15 kg (33 lb) per pot. The depth range was 218 to 358 m (119 to 196 fathoms) for the individual fleets (See Table 3).

The 302 to 320 m (165 to 175 fathoms) depth range produced the largest catch rates which averaged over 16.8 kg (37 lb) per pot. However, the depth range from 283 to 357 m (155 to 195 fathoms) produced an average catch of over 12.2 kg (27 lb) per pot (See figure 1).

TABLE 2: Vessel 2 Trip Summary - 1985, Crab Vessel Monitoring Labrador

Date Landed	No. Pots Fished	Catch (lbs)		Fishing Time (Hrs)	Depth Range (fathoms)	Area(s) Fished	Average Catch per Pot (lbs)	Landing Site
		Commercial	Undersize					
Aug. 19	630	6,703	4,000	144	-	1	10.6	Mary's Hr.
Aug. 21	700	21,862	2,200	72	-	1,3	31.2	St. Anthony
Aug. 23	630	16,984	500	42	-	3	27.0	Mary's Hr.
Aug. 26	770	28,578	1,350	87	130-166	4	37.1	St.Anthony
Aug. 29	630	25,989	955	72	165-166	4	41.3	Mary's Hr.
Aug. 31	630	22,414	2,450	69	162-165	4	35.6	Mary's Hr.
Sept. 02	560	26,232	2,350	66	156-167	4	46.8	Mary's Hr.
Sept. 04	700	27,006	3,150	67	160-168	4	38.6	Mary's Hr.
Sept. 11	770	25,962	1,600	151	163-168	4	33.7	Mary's Hr.
Sept. 14	490	8,486	1,300	96	160-165	4	17.3	Mary's Hr.
Sept. 16	700	10,153	1,070	21	170-196	5,6	14.5	Mary's Hr.
Sept. 19	840	24,801	1,000	108	160-190	4,6	29.5	Mary's Hr.
Sept. 20	770	23,708	2,800	44	162-186	4,6	30.8	Mary's Hr.
Sept. 25	560	13,037	480	123	163-185	4,6	23.3	Mary's Hr.
Sept. 27	700	14,043	1,210	84	116-185	4,5,6	20.1	Mary's Hr.
Oct. 01	420	0	0	96	182-190	7	0	Mary's Hr.
Octo. 09	420	3,900*	600	192	160-181	8	9.3	Mary's Hr.
Oct. 15	420	13,600*	820	240	118	5	32.4	Mary's Hr.
Total/Avg.	11,340	313,458	27,455		116-196		27.6	

Note:

Catch: The commercial catches are the actual landings recorded from the Labrador Fishermen's Union Shrimp Co. plant located in Mary's Harbour, while the undersized catches were estimated onboard the vessels.

*Estimated catch

Fishing Time: The average number of hours in which all fleets hauled on that date were in the water.

Conversion to Metric: kg = .4536 x lb
m = fathom * .5465

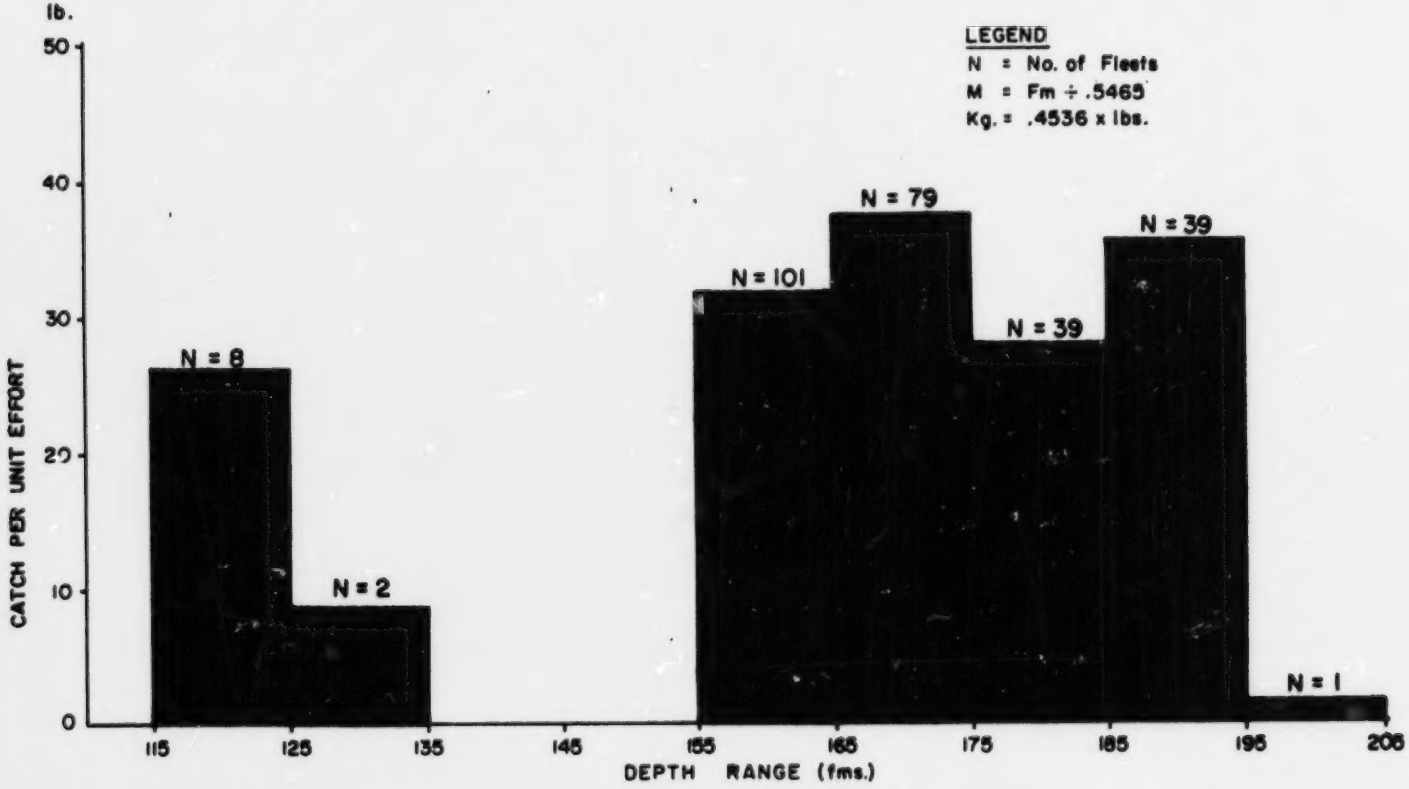
Table 3: Summary of Fishing Effort for Crab Vessels Fishing off Labrador.

Vessel	Number of Trips	Number of Fleets	Number of Pots	Depth Range (fathoms)**	Commercial Catch (lbs)*	Noncommercial Catch (lbs.)*	Average Commercial Catch/Pot (lbs.)	Average Catch per Trip (lbs)*
1	18	174	10,787	125-190	419,024	28,480	38.8	23,279
2	18	162	11,340	116-196	313,458	27,835	27.6	17,414
Total/ Avg.	36	336	22,127		732,482	56,315	33.1	20,347

* kg = .4536 x lb
** m = fathom * .5465

FIG. 1.

COMMERCIAL CRAB CATCHES PER UNIT EFFORT AT DIFFERENT DEPTH RANGES



AREAS FISHED

The vessels fished eight separate areas off the Labrador coast (See figure 2) ranging from 6 to 68 nautical miles from shore.

Areas one to three are situated from 6 to 28 nautical miles offshore and were fished from 1 to 3 days with the total number of pots fished in the three areas being 3,560. The daily catch* rates were between 4.54 and 14.06 kg (10 and 31 lb) of commercial crab per pot for these areas. The individual average catch rate per pot for areas one, two, and three were 6.8 kg, 7.7 kg, and 10.43 kg (15 lb, 17 lb, and 23 lb) respectively.

In area four 190 fleets were fished during 13 fishing days. Daily catch rates ranged from 9.5 to 26.7 kg (21 to 59 lb) of commercial crab per pot. During the first 3 fishing days in this area catch rates ranged from 19.5 to 26.7 kg (43 to 59 lb) per pot which decreased to between 9.5 and 15.9 kg (21 and 35 lb) per pot in the last 3 fishing days. The fishing area covered approximately 40 square miles situated between 46 and 58 nautical miles offshore.

Nine fleets were fished in area five during the 3 fishing days, with daily catch rates ranging from 5 to 32 lb per pot. The average was 11.8 kg (26 lb) per pot for the 630 pots fished. This area is situated between 40 and 44 nautical miles offshore and covers approximately 5 square miles.

In fishing area six 72 fleets of gear, (4,539 individual pots), were fished during the 8 fishing days. The total catch was 70,379 kg (155,156 lb) with a range of 6.8 to 20.4 kg (15 lb to 45 lb) per pot. The

*Refers to days in which pots were hauled.

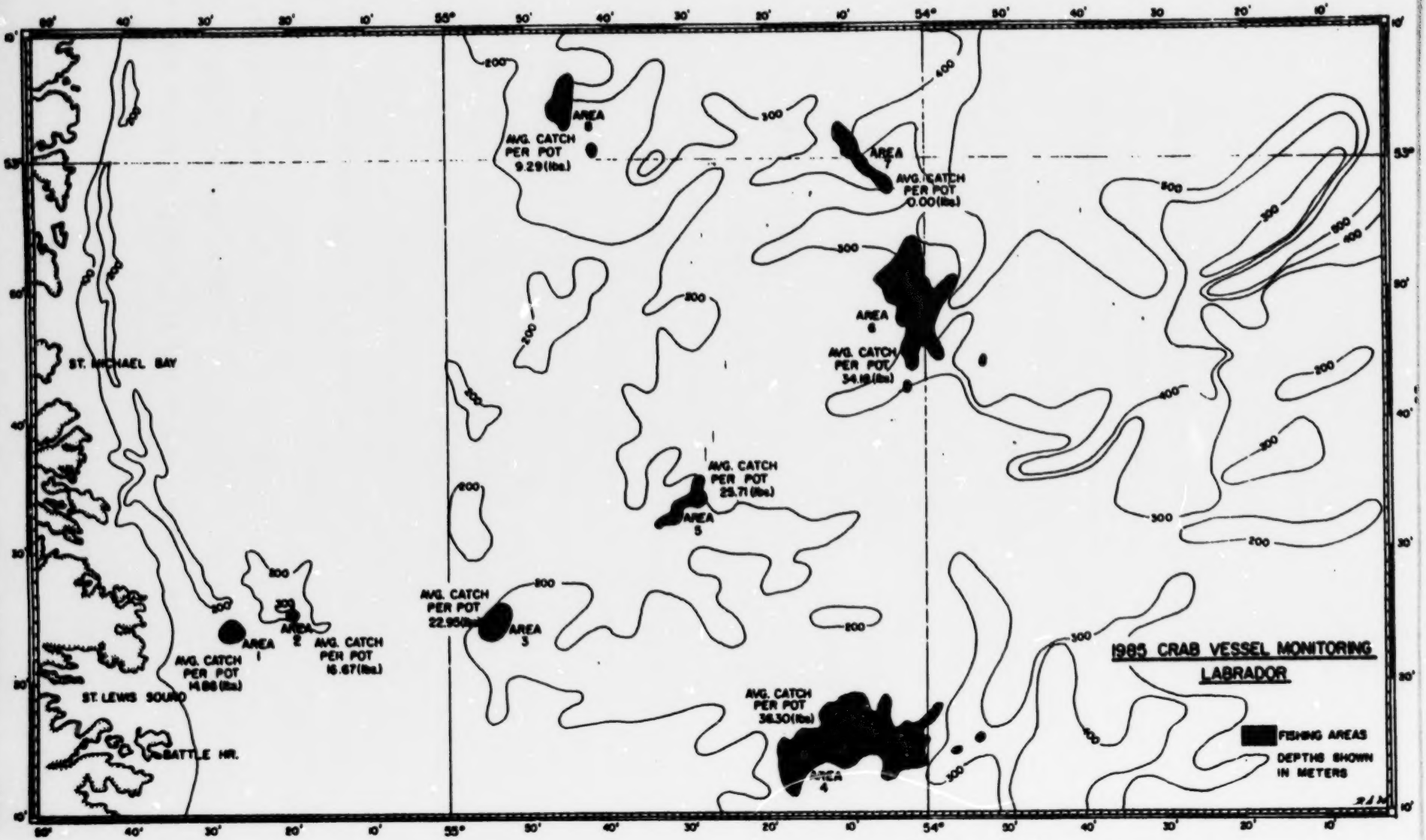


Fig. 2. 1985 Experimental Commercial Crab Fishing Project, Labrador. Kg = .4536 x lb.

first day fishing in this area averaged 6.8 kg (15 lb) per pot but all remaining daily catch rates ranged from 14 to 20.4 kg (31 to 45 lb) per pot. The average catch rate for this area was 15.4 kg (34 lb) of crab per pot. This fishing area is situated from 62 to 68 nautical miles offshore and covers approximately 30 square miles.

Fishing area seven is situated 68 nautical miles offshore and covers approximately 5 square miles. In this area 420 pots were fished without catching any crab.

Fishing area eight is situated 35 nautical miles offshore and also covers approximately 5 square miles. This area was fished for only 1 day with a catch rate of 4.08 kg (9 lb) per pot for the 420 pots fished.

For more detailed information on each area see Table 4.

DISCUSSION

During the first few days the vessels fished near shore areas which yielded good catches in the 1983-84 survey. However due to high catches of undersized crab they soon moved further offshore to areas which showed better catch rates during 1983 and 1984 surveys.

The vessel landed a total of 331,128 kg (730,000 lb) of commercial crab, an average of 9,229 kg (20,347 lb) per vessel per trip. This total could have increased slightly if the vesselss had not been on a plant quota of approximately 11,340 kg (25,000 lb) each per trip.

Table 4: Analysis of Fishing Effort in Each Area Fished.

Area Fished	Date Hauled	Fleet Numbers	Number of Fleets Fished	Total Number of Pots	Estimated Catch (lbs)*	
					Total	Per Pot
1	Aug. 19	1-2, 175-183	11	750	7,703	10.27
	Aug. 21	184-186	3	210	6,558	31.23
		Sub Total	14	960	14,261	14.86
2	Aug. 19	3-6	4	240	4,000	16.67
		Sub Total	4	240	4,000	16.67
3	Aug. 19	7-13	7	440	13,000	29.55
	Aug. 21	14-25, 187-193	19	1,290	30,303	23.49
	Aug. 23	194-202	9	630	16,984	26.96
		Sub Total	35	2,360	54,172	22.95
4	Aug. 23	26-30	5	375	22,000	58.67
	Aug. 26	31-40, 203-213	21	1,379	59,628	43.24
	Aug. 29	41-46, 214-222	15	985	49,252	50.00
	Aug. 31	47-55, 223-231	18	1,191	47,114	39.56
	Sept. 2	56-64, 232-239	17	1,122	52,054	46.39
	Sept. 4	65-75, 240-249	21	1,384	46,989	33.95
	Sept. 11	76-87, 250-260	23	1,506	45,602	30.28
	Sept. 14	88-99, 261-267	19	1,222	32,601	26.68
	Sept. 16	100-112	13	794	26,298	33.12
	Sept. 19	113-123, 278-284	18	1,160	30,283	26.11
	Sept. 20	124-130, 290-295	13	850	29,739	34.99
	Sept. 25	301, 308	2	140	2,900	20.71
	Sept. 27	309-313	5	350	7,800	22.29
		Sub Total	190	12,458	452,260	36.30
5	Sept. 16	275	1	70	350	5.00
	Sept. 27	317-318	2	140	2,250	16.07
	Oct. 15	331-336	6	420	13,600	32.38
		Sub Total	9	630	16,200	25.71
6	Sept. 16	268-274, 276-277	9	630	9,300	14.76
	Sept. 19	285-289	5	350	13,000	37.14
	Sept. 20	131-135, 296-300	10	655	20,031	30.58

* kg = .4536 x lb

Table 4: Analysis of Fishing Effort in Each Area Fished. (Continued)

Area Fished	Date Hauled	Fleet Numbers	Number of Fleets Fished	Total Number of Pots	Estimated Catch (lbs)*	
					Total	Per Pot
	Sept. 25	136-145, 302-307	16	1,017	35,264	34.67
	Sept. 27	146-157, 314-316	15	944	35,000	41.47
	Oct. 1	158-162	5	311	12,561	40.39
	Oct. 9	163-169	7	426	19,050	44.72
	Oct. 16	170-174	5	306	10,950	35.78
		Sub-Total	72	4,639	155,156	34.18
7	Oct. 1	319-324	6	420	0	0.00
		Sub-Total	6	420	0	0.00
8	Oct. 9	325-330	6	420	3,900	9.29
		Sub-Total	6	420	3,900	9.29
		Total	336	22,127	699,949	31.78

* kg = .4536 x lb

Of the 267 individual fleet catch rates recorded 33 percent were over 18 kg (40 lb) per pot, 36 percent were between 11.3 to 18 kg (25 and 40 lb) per pot, 14 percent were between 6.8 and 11.3 kg (15 and 25 lb) per pot, and 17 percent were less than 6.8 kg (15 lb) per pot. Approximately seven percent of the total catch were soft-shelled crab were estimated at well below one percent.

In the two areas (4 and 6) where harvesting was mainly concentrated, catch rates varied considerably but were consistently high through the entire period, with exception of the first day's fishing in area six (see Table 4).

The vessels were late in beginning to fish off Labrador but few problems were encountered once begun. On October 1 both parties decided to conclude their fishing effort. However, due to bad weather it took 2 weeks (until the 15th of October) before all their crab gear could be taken from the water.

The areas fished by both vessels cover only a small portion of the region where crab was found during the 1983 and 1984 surveys. This indicates that the crab grounds are larger than the areas fished by both vessels though some searching may be required to find pockets of crab since they may have moved since the survey period.

Subsequent to this survey, Resource Management established a quota of 925 m.t. of crab in 2J for the 1986 fishery. Six vessels were granted permission to fish this crab stock off Labrador.

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APPENDIX I

VESSEL 1 - SUMMARY OF RESULTS - 1985

EXPERIMENTAL COMMERCIAL CRAB FISHING PROJECT - LABRADOR

TABLE 5: Vessel 1 - Summary of Results

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
1 - 2	Aug. 19	15270	33038	144	135	120	1,000	1,000	8.33
3 - 6	Aug. 19	15240	32980	144	135-175	240	4,000	1,500	16.67
7 - 13	Aug. 19	15118	32837	144	125-145	440	13,000	1,000	29.55
14 - 25	Aug. 21	15118	32837	72	125-145	800	15,000	2,000	18.75
26 - 30	Aug. 23	14882	32675	42	165-175	375	22,000	500	58.67
31	Aug. 26	14864	32592	72	164	60	165	15	2.75
32	Aug. 26	14862	32594	72	164	68	660	20	9.71
33	Aug. 26	14856	32601	72	167	68	2,970	50	43.68
34	Aug. 26	14859	32604	72	166	62	3,410	150	55.00
35	Aug. 26	14853	32614	72	165	54	3,190	130	59.07
36	Aug. 26	14848	32610	72	167	60	3,000	100	50.00
37	Aug. 26	14891	32636	72	162	62	2,970	75	47.90
38	Aug. 26	14886	32644	72	160	56	2,585	120	46.16
39	Aug. 26	14880	32654	48	167	60	4,950	120	82.50
40	Aug. 26	14886	32661	48	170	59	7,150	300	121.19
41	Aug. 29	14882	32651	72	165	56	2,915	120	52.05
42	Aug. 29	14876	32660	57	170	60	3,975	200	66.25
43	Aug. 29	14880	32669	62	175	59	4,770	240	80.85
44	Aug. 29	14869	32677	120	165	70	3,710	260	53.00
45	Aug. 29	14888	32664	120	168	50	4,240	320	84.80
46	Aug. 29	14887	32667	120	175	60	6,042	260	100.70
47	Aug. 31	14852	32608	120	167	68	2,332	160	34.29
48	Aug. 31	14859	32606	120	165	62	2,279	120	36.76
49	Aug. 31	14848	32620	120	165	54	2,809	160	52.02
50	Aug. 31	14844	32617	120	165	60	2,491	120	41.52
51	Aug. 31	14848	32606	120	163	68	2,120	120	31.18
52	Aug. 31	14850	32628	120	165	60	3,021	160	50.35
53	Aug. 31	14870	32888	48	168	70	3,233	240	46.19
54	Aug. 31	14888	32666	48	168	59	2,703	200	45.81
55	Aug. 31	14885	32670	48	175	60	4,876	400	81.27
56	Sept. 2	14880	32667	96	173	59	3,869	280	65.58
57	Sept. 2	14875	32660	96	170	60	3,445	240	57.42

*kg = .4536 x lb ** m = fathom ÷ .5465

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs.)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
58	Sept. 2	14879	32653	96	165	56	3,180	200	56.79
59	Sept. 2	14872	32665	48	165	70	2,120	200	30.29
60	Sept. 2	14863	32688	48	160	68	1,961	240	28.84
61	Sept. 2	14879	32668	48	170	59	2,544	360	43.12
62	Sept. 2	14876	32679	48	165	62	3,233	360	52.15
63	Sept. 2	14872	32670	48	165	68	3,021	200	44.43
64	Sept. 2	14889	32665	48	173	60	4,081	400	68.02
65	Sept. 4	14886	32643	216	165	62	1,855	80	29.92
66	Sept. 4	14855	32622	96	167	60	2,379	120	39.65
67	Sept. 4	14877	32678	48	170	62	1,961	240	31.63
68	Sept. 4	14875	32676	48	168	59	954	200	16.17
69	Sept. 4	14865	32667	48	163	68	1,060	120	15.59
70	Sept. 4	14878	32687	48	163	70	2,491	320	35.59
71	Sept. 4	14885	32678	48	175	68	1,855	200	27.28
72	Sept. 4	14885	32672	48	175	60	2,703	360	45.05
73	Sept. 4	14878	32666	48	173	59	2,438	200	41.32
74	Sept. 4	14874	32660	48	170	60	2,120	160	35.33
75	Sept. 4	14878	32652	48	165	56	2,173	200	38.80
76	Sept. 11	14848	32612	264	167	60	1,749	120	29.15
77	Sept. 11	14852	32616	264	165	54	1,643	80	30.43
78	Sept. 11	14879	32684	144	165	70	2,332	240	33.31
79	Sept. 11	14885	32673	144	175	60	2,173	160	36.22
80	Sept. 11	14880	32666	144	173	59	2,385	120	40.42
81	Sept. 11	14873	32658	144	170	60	1,590	40	26.50
82	Sept. 11	14878	32650	144	165	56	1,961	120	35.02
83	Sept. 11	14885	32642	144	157	62	1,590	80	25.65
84	Sept. 11	14850	32628	144	165	60	1,166	20	19.43
85	Sept. 11	14837	32602	144	170	68	2,544	40	37.41
86	Sept. 11	14801	32557	144	170	59	2,650	20	44.92
87	Sept. 11	14797	32540	144	175	68	1,219	20	17.93
88	Sept. 14	14877	32679	240	165	62	2,438	240	39.32
89	Sept. 14	14838	32601	72	170	68	2,438	60	35.85
90	Sept. 14	14839	32588	72	168	59	2,915	200	49.41

*kg = .4536 x lb ** m = fathom * .5465

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
91	Sept. 14	14825	32606	72	170	68	1,378	140	20.26
92	Sept. 14	14838	32604	72	165	54	1,378	160	25.52
93	Sept. 14	14822	32621	72	165	60	1,113	160	18.55
94	Sept. 14	14881	32646	72	163	56	1,855	140	33.13
95	Sept. 14	14881	32662	72	165	60	2,332	120	38.87
96	Sept. 14	14880	32672	72	170	56	2,120	120	37.86
97	Sept. 14	14882	32666	72	175	59	2,703	180	45.81
98	Sept. 14	14885	32671	72	175	60	2,120	240	35.53
99	Sept. 14	14882	32683	72	170	70	1,961	280	28.01
100	Sept. 16	14884	32641	120	168	62	1,272	40	20.52
101	Sept. 16	14879	32679	48	172	62	2,173	240	35.05
102	Sept. 16	14897	32678	48	170	70	10	40	0.14
103	Sept. 16	14884	32673	48	177	60	2226	160	37.10
104	Sept. 16	14883	32667	48	178	59	2,438	240	41.32
105	Sept. 16	14881	32662	48	173	56	2226	200	39.76
106	Sept. 16	14878	32658	48	170	60	2,120	200	35.33
107	Sept. 16	14836	32588	48	170	59	3,180	440	53.90
108	Sept. 16	14828	32597	48	173	68	2,120	240	31.18
109	Sept. 16	14832	32603	48	170	54	3,074	160	56.93
110	Sept. 16	14837	32592	48	170	68	1,961	200	28.84
111	Sept. 16	14832	32606	48	170	60	1,855	280	30.92
112	Sept. 16	14839	32599	48	170	56	1,643	200	29.34
113	Sept. 18	14839	32591	48	170	68	2,120	160	31.18
114	Sept. 18	14835	32589	48	173	59	1,007	120	17.07
115	Sept. 18	14832	32588	48	173	68	1,219	160	17.93
116	Sept. 18	14832	32600	48	173	60	795	200	13.25
117	Sept. 18	14831	32592	48	170	54	2,385	200	44.17
118	Sept. 18	14827	32590	48	170	56	2,650	160	47.32
119	Sept. 18	14881	32663	48	165	60	1,126	160	18.77
120	Sept. 18	14887	32667	48	170	56	1,325	200	23.66
121	Sept. 18	14888	32672	48	175	59	2,120	360	35.93
122	Sept. 18	14891	32669	48	170	60	901	200	15.02
123	Sept. 18	14882	32681	48	170	70	1,855	480	26.50

*kg = .4536 x lb ** m = fathom ÷ .5465

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
124	Sept. 20	14878	32679	96	170	62	2,120	400	34.19
125	Sept. 20	14882	32669	96	170	62	2,332	280	37.61
126	Sept. 20	14827	32591	48	170	56	1,537	120	27.45
127	Sept. 20	14828	32599	48	170	54	1,325	160	24.54
128	Sept. 20	14836	32608	48	173	68	1,378	120	20.26
129	Sept. 20	14819	32589	48	170	69	2,014	160	29.19
130	Sept. 20	14825	32580	48	170	59	3,233	240	54.80
131	Sept. 20	14991	32379	24	185	70	1,113	360	15.90
132	Sept. 20	14994	32410	24	180	59	424	160	7.19
133	Sept. 20	14994	32396	24	187	56	4,505	240	80.45
134	Sept. 20	14998	32395	24	190	60	795	160	13.25
135	Sept. 20	15012	32363	24	185	60	5,194	80	86.57
136	Sept.25	14989	32393	144	187	60	53	20	0.88
137	Sept. 25	14996	32382	120	187	56	2,650	100	47.32
138	Sept. 25	14998	32386	120	187	60	1,060	80	17.67
139	Sept. 25	14993	32397	120	187	59	1,643	80	27.87
140	Sept. 25	15012	32373	120	185	60	4,558	80	75.97
141	Sept. 25	15014	32356	120	190	56	3,021	20	53.95
142	Sept. 25	15018	32367	120	187	54	3,763	200	69.69
143	Sept. 25	15021	32368	120	187	68	3,233	120	47.54
144	Sept. 25	15032	32346	96	185	62	2,279	40	36.76
145	Sept. 25	15018	32361	96	187	62	3,604	20	58.13
146	Sept. 27	14985	32431	168	175	59	53	0	0.90
147	Sept. 27	14989	32375	168	180	68	159	20	2.34
148	Sept. 27	14994	32396	168	190	70	318	40	4.54
149	Sept. 27	15021	32370	48	187	68	3,551	120	52.22
150	Sept. 27	15017	32367	48	190	54	4,558	40	84.41
151	Sept. 27	15013	32359	48	190	56	3,233	20	57.73
152	Sept. 27	15014	32363	48	190	60	5,512	80	91.87
153	Sept. 27	15019	32358	48	187	62	4,770	40	76.94
154	Sept. 27	15022	32346	48	187	62	1,431	20	23.08
155	Sept. 27	14994	32392	48	187	56	1,908	120	34.07
156	Sept. 27	15021	32370	48	185	59	3,233	200	54.80
157	Sept. 27	15020	32386	48	187	60	3,074	200	51.23

*kg = .4536 x lb ** m = fathom ÷ .5465

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
158	Oct. 1	15022	32387	96	187	60	1,749	120	29.15
159	Oct. 1	15019	32388	96	187	59	1,431	80	24.25
160	Oct. 1	15018	32383	96	185	68	2,703	160	39.75
161	Oct. 1	15013	32378	96	185	54	3,074	80	56.93
162	Oct. 1	14024	32360	96	187	70	3,604	200	51.49
163	Oct. 8	15024	32388	168	185	60	2,250	80	37.50
164	Oct. 8	15029	32382	168	187	59	2,800	80	47.46
165	Oct. 8	15024	32360	264	187	59	1,800	80	30.51
166	Oct. 8	14988	32410	264	190	62	3,800	80	61.29
167	Oct. 8	15017	32376	264	187	56	2,850	40	50.89
168	Oct. 8	14996	32384	168	187	70	2,550	120	36.43
169	Oct. 8	15011	32373	264	185	60	3,000	0	50.00
170	Oct. 16	15018	32384	456	187	68	2,900	80	42.65
171	Oct. 16	15014	32379	456	185	54	2,450	40	45.37
172	Oct. 16	15008	32370	456	183	56	1,650	0	29.46
173	Oct. 16	15008	32373	456	180	68	1,550	40	22.79
174	Oct. 16	15004	32364	456	185	60	2,400	80	40.00
			Totals/ Avgs.	101.75	125-190	10,787	404,758	28,480	37.52

*kg = .4536 x lb ** m = fathom ÷ .5465

APPENDIX II

VESSEL 2 - SUMMARY OF RESULTS - 1985

EXPERIMENTAL COMMERCIAL CRAB FISHING PROJECT - LABRADOR

TABLE 6: Vessel 2 - Summary of Results

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
175-183	Aug. 19			144		630	6,703	4,000	10.64
184-193	Aug. 21			72		700	21,862	2,200	31.23
194-202	Aug. 23			42		630	16,984	500	26.95
203-213	Aug. 26	14888	32620	87	130-166	770	28,578	1,350	37.11
214	Aug. 29	14885	32622	72	165	70	3,000	100	4.28
215	Aug. 29	14887	32622	72	165	70	3,400	100	48.57
216	Aug. 29	14861	32620	72	165	70	2,900	80	41.43
217	Aug. 29	14863	32615	72	165	70	1,700	50	24.28
218	Aug. 29	14872	32625	72	165	70	3,100	50	44.28
219	Aug. 29	14879	32628	72	165	70	2,800	100	40.00
220	Aug. 29	14882	32622	72	165	70	2,000	75	28.57
221	Aug. 29	14881	32616	72	165	70	3,200	250	45.71
222	Aug. 29	14878	32613	72	165	70	1,500	150	21.43
223	Aug. 31	14876	32620	240	163	70	3,000	200	42.86
224	Aug. 31	14873	32613	48	165	70	3,000	400	42.86
225	Aug. 31	14878	32624	48	163	70	1,650	300	23.57
226	Aug. 31	14867	32610	48	165	70	2,200	250	31.43
227	Aug. 31	14862	32635	48	164	70	2,000	250	28.57
228	Aug. 31	14858	32631	48	164	70	2,100	250	30.00
229	Aug. 31	14855	32630	48	165	70	3,500	300	50.00
230	Aug. 31	14862	32644	48	165	70	1,800	100	25.71
231	Aug. 31	14848	32632	48	162	70	2,000	400	28.57
232	Sept. 2	14872	32652	48	164	70	4,000	500	57.15
233	Sept. 2	14862	32635	48	166	70	4,300	400	61.43
234	Sept. 2	14858	32631	48	167	70	4,500	400	64.28
235	Sept. 2	14855	32630	48	165	70	3,000	250	42.85
236	Sept. 2	14887	32622	96	163	70	3,500	300	50.00
237	Sept. 2	14874	32609	96	164	70	1,600	200	22.86
238	Sept. 2	14859	32643	48	163	70	2,700	250	38.57
239	Sept. 2	14878	32613	96	156	70	1,000	50	14.28
240	Sept. 4	14878	32624	96	162	70	2,100	300	30.00
241	Sept. 4	14876	32620	96	160	70	2,300	400	32.86
242	Sept. 4	14873	32613	96	165	70	1,600	200	22.86

*kg = .4536 x lb ** m = fathom ÷ .5465

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
243	Sept. 4	14867	32610	96	165	70	1,300	300	18.57
244	Sept. 4	14855	32630	48	165	70	2,500	500	35.71
245	Sept. 4	14874	32609	48	164	70	2,900	300	41.43
246	Sept. 4	14858	32631	48	168	70	3,300	300	47.14
247	Sept. 4	14862	32635	48	163	70	3,000	250	42.86
248	Sept. 4	14872	32652	48	165	70	2,500	200	35.71
249	Sept. 4	14878	32613	48	163	70	3,500	400	50.00
250	Sept. 11	14856	32642	144	165	70	1,400	150	20.00
251	Sept. 11	14873	32643	144	165	70	2,600	250	37.14
252	Sept. 11	14860	32645	144	165	70	2,200	250	31.43
253	Sept. 11	14878	32613	144	163	70	2,200	150	31.43
254	Sept. 11	14859	32643	216	163	70	2,400	200	34.28
255	Sept. 11	14872	32652	144	165	70	2,400	100	34.28
256	Sept. 11	14862	32635	144	163	70	1,700	50	24.28
257	Sept. 11	14858	32631	144	168	70	2,200	100	31.43
258	Sept. 11	14874	32609	144	164	70	1,600	100	22.85
259	Sept. 11	14855	32630	144	165	70	1,900	100	27.14
260	Sept. 11	14887	32622	144	163	70	2,000	150	28.57
261	Sept. 14	14841	32578	240	160	70	650	100	9.28
262	Sept. 14	14835	32565	72	163	70	100	50	1.43
263	Sept. 14	14835	32553	72	165	70	1,000	200	14.28
264	Sept. 14	14859	32643	72	163	70	1,700	250	24.28
265	Sept. 14	14878	32613	72	163	70	1,800	300	25.71
266	Sept. 14	14860	32645	72	165	70	1,400	200	20.00
267	Sept. 14	14874	32609	72	164	70	1,200	200	17.14
268	Sept. 16	14977	32386	36	170	70	0	0	0
269	Sept. 16	14986	32382	36	180	70	0	50	0
270	Sept. 16	14995	32375	36	183	70	1,000	160	14.28
271	Sept. 16	15001	32380	36	184	70	3,800	120	54.28
272	Sept. 16	15009	32390	36	179	70	100	120	1.42
273	Sept. 16	15001	32380	7	184	70	2,800	120	40
274	Sept. 16	14995	32354	5	187	70	1,000	0	14.28
275	Sept. 16	14997	32543	5	195	70	350	400	5
276	Sept. 16	14991	32337	5	196	70	100	60	1.42

*kg = .4536 x lb ** m = fathom ÷ .5465

Fleet #	Date Hauled	Loran-Position 7930W	Loran-Position 7930X	Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)* Commercial	Undersize	Average Commercial per Pot
277	Sept. 16	14988	32350	5	190	70	500	40	7.14
278	Sept. 18	14856	32642	168	160	70	530	40	7.57
279	Sept. 18	14858	32631	168	160	70	1,400	120	20
280	Sept. 18	14872	32652	168	165	70	2,500	100	35.71
281	Sept. 18	14873	32643	168	162	70	2,850	120	40.71
282	Sept. 18	14862	32635	168	162	70	2,700	80	38.57
283	Sept. 18	14878	32613	168	163	70	1,300	40	18.57
284	Sept. 18	14859	32643	168	163	70	1,500	120	21.42
285	Sept. 19	15009	32390	48	190	70	1,600	80	22.85
286	Sept. 19	15021	32423	48	168	70	600	80	8.57
287	Sept. 19	14988	32360	48	185	70	2,400	40	34.28
288	Sept. 19	14992	32363	48	186	70	4,700	60	67.14
289	Sept. 19	14994	32364	48	185	70	3,700	120	58.85
290	Sept. 20	14856	32642	48	166	70	2,400	320	34.28
291	Sept. 20	14858	32631	48	163	70	2,200	280	31.42
292	Sept. 20	14872	32652	48	165	70	2,900	400	41.43
293	Sept. 20	14873	32643	48	162	70	3,700	440	52.85
294	Sept. 20	14867	32635	48	162	70	2,900	400	41.43
295	Sept. 20	14878	32613	48	163	70	1,700	320	24.29
296	Sept. 20	14995	32365	40	185	70	1,100	200	15.71
297	Sept. 20	14990	32362	40	185	70	2,500	120	35.71
298	Sept. 20	15001	32363	40	186	70	300	40	4.29
299	Sept. 20	14992	32363	40	186	70	2,000	200	28.57
300	Sept. 20	14994	32364	40	184	70	2,100	80	30
301	Sept. 25	14874	32654	120	168	70	1,900	80	27.14
302	Sept. 25	14995	32354	120	163	70	2,400	80	34.29
303	Sept. 25	14994	32364	120	184	70	2,600	80	37.14
304	Sept. 25	14995	32365	120	185	70	1,300	80	18.57
305	Sept. 25	14988	32360	144	185	70	1,000	40	14.29
306	Sept. 25	14992	32363	120	186	70	1,100	40	15.71
307	Sept. 25	14990	32362	120	185	70	1,000	40	14.29
308	Sept. 25	14872	32652	120	185	70	1,000	40	14.29
309	Sept. 27	14874	32654	48	168	70	700	80	10

*kg = .4536 x lb ** m = fathom ÷ .6465

Fleet #	Date Hauled	Loran-Position		Time Pots in Water (hrs)	Depth (fathoms) **	Number of Pots	Estimated Catch (lbs)*		
		7930W	7930X				Commercial	Undersize	Average Commercial per Pot
310	Sept. 27	14878	32613	48	163	70	2,000	150	28.57
311	Sept. 27	14862	32635	48	162	70	2,000	80	28.57
312	Sept. 27	14873	32643	48	162	70	2,100	100	30
313	Sept. 27	14872	32652	48	165	70	1,000	40	14.29
314	Sept. 27	14995	32354	48	163	70	800	20	11.43
315	Sept. 27	14994	32364	48	183	70	2,400	40	34.29
316	Sept. 27	14981	32350	48	185	70	0	0	0
317	Sept. 27	15049	32630	48	116	70	750	300	10.71
318	Sept. 27	15058	32654	48	118	70	1,500	400	21.43
319	Oct. 1	15055	32322	96	186	70	0	0	0
320	Oct. 1	15048	32321	96	184	70	0	0	0
321	Oct. 1	15082	32308	96	185	70	0	0	0
322	Oct. 1	15080	32311	96	187	70	0	0	0
323	Oct. 1	15077	32320	96	190	70	0	0	0
324	Oct. 1	15045	32322	96	182	70	0	0	0
325	Oct. 9	15200	32456	192	170	70	500	100	7.14
326	Oct. 9	15199	32443	192	180	70	0	0	0
327	Oct. 9	15198	32448	192	175	70	400	50	5.71
328	Oct. 9	15197	32446	192	181	70	2,400	300	34.29
329	Oct. 9	15192	32461	192	170	70	400	100	5.71
330	Oct. 9	15186	32489	192	160	70	200	50	2.86
331	Oct. 15	15059	32660	240	118	70	1,600	100	0.23
332	Oct. 15	15058	32654	240	118	70	1,800	120	25.71
333	Oct. 15	15059	32643	240	118	70	2,300	120	32.86
334	Oct. 15	15061	32646	240	118	70	2,500	160	35.71
335	Oct. 15	15061	32650	240	118	70	3,100	200	44.29
336	Oct. 15	15062	32665	240	118	70	2,300	120	32.86
			Totals/ Avgs.	93.60	116-196	11,340	301,307	27,835	26.57

*kg = .4536 x lb ** m = fathom ÷ .5465